



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
State Revolving Fund Loan Program
L & C Tower, 8th Floor
401 Church Street
Nashville, TN 37243

FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
Water Authority of Dickson County (Dickson and Williamson Counties), Tennessee
Loan No. CW0 2012-295

April 04, 2012

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by Section 511(c)(1) of the Clean Water Act, is the approval of a facilities plan prepared pursuant to Title VI of the Clean Water Act. In making this determination, the State Revolving Fund (SRF) Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The state's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the SRF Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The Water Authority of Dickson County (WADC) has completed the facilities plan entitled "Low Pressure Sewer Expansion to Replace Failing Septic Tanks-Burns, TN and Rehabilitation of Existing Gravity Sewer-Dickson, TN" dated October 2011. The facilities plan provides recommendations for expanding low pressure sewer collection lines to the Town of Burns and rehabilitating existing gravity sewers in the City of Dickson. This project includes constructing low pressure (grinder pump) sewers in six existing residential areas of Burns that are currently served by septic tanks. These areas are Central Burns, Northern Burns, Sunny Brook, Bon Meade, East/West Circle, and Lime Kiln. This project will also include rehabilitating existing sewers in the City of Dickson with cure-in-place fiberglass lining and pipe bursting methods. Existing manholes will be rehabilitated with polymeric coatings or replaced where rehabilitation is not possible. The total estimated project cost is \$10,000,000. A Clean Water State Revolving Fund loan in the amount of \$10,000,000 has been requested for this project. This project will be funded with a \$8,000,000 loan and \$2,000,000 in principal forgiveness that will not have to be repaid by the WADC.

Attached is an Environmental Assessment containing detailed information supporting this proposed action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Sam R. Gaddipati, Environmental Manager
State Revolving Fund Loan Program
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or contact him by telephone at (615) 532-0445 or by e-mail at sam.gaddipati@tn.gov.

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A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

This project includes constructing low pressure (grinder pump) sewers in six existing residential areas of Burns that are currently served by septic tanks. These areas are Central Burns, Northern Burns, Sunny Brook, Bon Meade, East/West Circle, and Lime Kiln. This project will also include rehabilitating existing sewers in the City of Burns with cure-in-place fiberglass lining and pipe bursting methods. Existing manholes will be rehabilitated with polymeric coatings or replaced where rehabilitation is not possible. The project locations and facilities planning area are indicated on Figures No. 1, 2, and 3 of this Environmental Assessment. Descriptions of the proposed facilities and actions included in this project are listed below:

FUNDING STATUS

The facilities described above comprise the scope of Loan No. CW0 2012-295 scheduled for funding in fiscal year 2012. The estimated project costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Administrative & Legal	\$20,000
Land Costs & Appraisals	\$15,000
Planning Fees	\$600,000
Design Fees	\$150,000
Engineering Basic Fees	\$250,000
Resident Inspection	\$60,000
Construction	\$8,305,000
Miscellaneous	\$200,000
Contingencies	\$400,000
TOTAL	\$10,000,000
Loan	\$8,000,000
Amount Designated for Principal Forgiveness (Will not have to be repaid)	\$2,000,000

The Water Authority of Dickson County (WADC) has applied for a \$10,000,000 Clean Water State Revolving Fund loan. This project will be funded with a \$8,000,000 loan and \$2,000,000 in principal forgiveness that will not have to be repaid by the WADC.

B. EXISTING ENVIRONMENT

The WADC's Planning Area is located in Dickson County in middle Tennessee. A discussion of existing environmental features in the area includes the following:

SURFACE WATERS

There are no major surface waters in the planning area. The nearest major river, the Harpeth River, is ten miles east of Dickson. The streams found in the planning area, which include East Piney River and Jones Creek, have small drainage basins and depend primarily on springs to maintain a dry weather flow. The Jones Creek wastewater treatment plant (WWTP) discharges

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treated effluent into Jones Creek at River Mile 21.7. Classified stream uses at this location are industrial, fish, irrigation, livestock watering and wildlife. There are no significant natural lakes or impoundments within the WADC Planning Area. The water supply sources for the WADC are Turnbull Creek, Piney River, and Cumberland River. These sources will not be affected by this project.

GROUNDWATER

Groundwater for the planning area is obtained from solution cavities in the St. Louis Limestone or Warsaw Limestone formations. Most of the domestic water supply wells are usually 100 feet deep or less, but some wells have been drilled to a depth of 300 feet. Water of good quality is usually obtained from these shallow wells. However, hardness may be a minor problem and excessive amounts of iron are sometimes encountered. There are only a few locations where groundwater supplies in excess of 50 gallons per minute may be developed.

SOILS

The soils in the planning area may be grouped into four general classifications: Baxter-Mountview-Dickson-Ennis, Dickson-Mountview(Guthrie), Bodine-Mountview-Ennis, and Guinn-Brandon-Lax. Dickson is situated primarily on the Baxter-Mountview-Dickson-Ennis association. These soils are derived from a moderate low-grade limestone of the Warsaw formation and make up about three fourths of the planning area. These soils are undulating, well-drained to poorly drained clayey soils created from loess, alluvium, and limestone. The other soil associations in the planning area are undulating and rolling, well-drained and moderately well-drained silty, loamy and graveley soils from loess and coastal plain sediment.

TOPOGRAPHY

The majority of the terrain within the planning area is gentle to moderately sloping. A major topographic feature is the Tennessee Valley Divide which transverses the planning area in a southeasterly-northwesterly direction. This ridge line separates the Tennessee River Basin from the Cumberland River Basin. Relief is moderate, with elevations ranging from about 700 feet above mean sea level (MSL) to about 1,040 feet above MSL.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers or unique agricultural, scientific, cultural, ecological, or natural areas were identified in the WADC's Planning Area.

C. EXISTING WASTEWATER FACILITIES

The WADC's wastewater treatment system consists of the 4.0 million gallons per day (MGD) Jones Creek WWTP and a collection system. The WWTP was built in 1978 and upgraded in 1988. The WWTP includes a mechanical bar screen, aerated grit chamber, two-ring oxidation ditch, final clarifiers, chlorine contact chamber, belt filter press, and sludge stabilization building. The WWTP consistently meets its NPDES discharge limits. The Jones Creek WWTP discharges treated effluent from its outfall location into the Jones Creek at River Mile 21.7. Biosludge is dewatered and stabilized by the N-Viro process to produce a Class A biosolid delivered to area landowners for use as a fertilizer and alkalinity supplement. The collection system consists of

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approximately 500,000 linear feet (LF) of gravity sewers, and approximately 190,000 LF of force main of varying age, materials, and condition.

The WWTP currently operated under the National Pollutant Discharge Elimination System (NPDES) Permit No. TN0062332 that includes the following parameters and effluent limitations:

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS</u>
CBOD ₅ , May-Oct	11.2 milligrams per liter (mg/l)
CBOD ₅ , Nov-Apr	18.7 milligrams per liter (mg/l)
Suspended Solids	22 mg/l
Fecal Coliform	126/100 colonies per milliliter
Dissolved Oxygen	6.0 instantaneous minimum
Ammonia as N (May 1-October 31)	1.0 mg/l
Ammonia as N (Nov. 1-April 30)	1.9 mg/l
Chlorine Residual, Total	0.02 instantaneous maximum
Settleable Solids	1.0 daily maximum (milliliter/liter)
pH	6.0-9.0 (Standard Units)

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

The six areas of concern in the Town of Burns were constructed approximately 40 years old and are experiencing septic tank failures. These septic tank failures threaten the groundwater quality and could possibly affect public health. Installing grinder pumps and low pressure sewers will be more cost effective than installing new septic tanks and associated field lines.

The City of Dickson's first gravity sewer was constructed in 1927 with approximately 100,000 LF of clay pipe and brick manholes. In 1964 concrete pipe was used to expand the system to approximately twice the size of the original area. Currently, including these two sections, there is approximately 690,000 LF of sewer and 2,200 manholes in the WADC's sewer system, with the majority being gravity sewer. Both the original and subsequent sections, with the exception of the newest lines installed in the last 20 years are experiencing infiltration and inflow (I/I). During rainfall events the Jones Creek WWTP experiences spikes in hydraulic loading.

Existing and projected facility conditions are shown in the following table:

<u>POPULATION</u>	<u>EXISTING (2012)</u>	<u>PROJECTED (2032)</u>
City of Dickson	13,459	16,150
% Sewered	96	96
Planning Area Excluding Dickson	36,207	41,073
% Sewered	10	10
Total Planning Area	49,666	57,223
% Sewered	33	34

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<u>CITY/UD WWTP FLOWS (MGD)</u>	<u>EXISTING (2012)</u>	<u>PROJECTED (2032)</u>
Domestic/Commercial	1.012	1.351
Industrial	0.201	0.5
Infiltration/Inflow (during rainfall events)	2.2	1.0
TOTAL	3.413	2.851

E. ALTERNATIVES ANALYSIS

Several alternatives, including a “No-action” alternative, were evaluated for wastewater collection in the Town of Burns and collection system rehabilitation in the City of Dickson in the October 2011 facilities plan. A summary discussion of the evaluation of each alternative for wastewater collection and the selection of the recommended plan follows:

Alternatives for the Town of Burns:

NO ACTION

The “No-action” approach was not a viable alternative. No action will result in increasing numbers of failing septic tanks in the Burns area. Failing septic tanks would contribute to possible groundwater contamination and public health issues. Therefore, some action must be taken to protect the environment and public health, and this alternative was rejected.

ONSITE WASTEWATER TREATMENT SYSTEMS

This system would consist of individual septic tanks and a recirculating sand filter for treatment with ultraviolet disinfection prior to disposal via drip irrigation. This alternative was not the most cost-effective and was rejected.

GRAVITY SEWER LINE

This system would consist of the installation of conventional service lines, gravity sewers, and manholes to connect to the existing collection system. All these areas are completely developed, and this option would involve excavation and repair to existing infrastructure. This alternative was not the most cost-effective and was rejected.

GRINDER PUMP PRESSURE SEWER SYSTEM

This system consists of small grinder pump stations that receive the wastewater from individual homes and pump it into the low pressure sewer which will connect to an existing force main which currently conveys sewage to the Jones Creek WWTP. This alternative was the most cost-effective and was selected.

Alternatives for the City of Dickson:

NO ACTION

The “No-action” approach was not a viable alternative. No action will result in further deterioration of the aging lines and increasing I/I being transported to and treated at the Jones

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Creek WWTP. Therefore, some action must be taken to protect the environment and public health, and this alternative was rejected.

RECONSTRUCTION OF SYSTEM

The WADC collection system contains approximately 500,000 LF of gravity sewer, much of which would require replacement. Reconstruction would involve a lengthy construction time, involve deep trench work, create storm water run-off issues, and create safety issues associated with deep excavations. This alternative was not the most cost-effective and was rejected.

REPLACEMENT WITH LOW PRESSURE SEWER

For established areas equipped with gravity sewer, retrofitting with a grinder pump and low pressure sewer lines for each house would be costly and lengthy in duration. The resulting mechanical systems would require maintenance and replacement after 15-20 years. This alternative was not the most cost-effective and was rejected.

REHABILITATE EXISTING GRAVITY SEWER

A number of technologies exist for rehabilitating existing sewer lines and manholes. The WADC plans to use cure-in-place fiberglass lining for most of the sewer line repairs. Where cure-in-place lining is not possible due to the deteriorated condition of the line, pipe bursting technology or point repairs will be utilized. Manholes needing repair will be rehabilitated using polymeric coatings. This alternative was the most cost-effective and was selected.

The environmental benefits of this project will be protection of public health and protection of the environment.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will be temporary and only necessary during construction. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It will contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It will include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

The state's Historic Preservation Officer has reviewed the project and has determined that the project will not impact known significant cultural resources.

No prime or unique agricultural lands or wetlands were identified and therefore will not be adversely affected. No endangered species of flora or fauna were identified within the proposed construction corridor. Effects on flora and fauna will be confined and temporary.

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G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on October 27, 2011 at 6:30 p.m., local time. The selected plan for wastewater collection and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project. The existing user charges are projected to be sufficient to repay the SRF loan. Therefore, no incremental increase in user charges will be required.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development (ECD)
3. Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation (TDOT)
5. TDEC, Division of Groundwater Protection (DGWP)
6. Tennessee Historical Commission
7. TDEC, Division of Archaeology (DA)
8. TDEC, Division of Natural Areas (DNA)
9. TDEC, Division of Solid Waste Management (DSWM)
10. TDEC, Division of Water Pollution Control (DWPC)
11. TDEC, Division of Water Supply (DWS)
12. Tennessee Wildlife Resources Agency (TWRA)
13. United States Army Corps of Engineers (USACE)
14. United States Fish and Wildlife Service (USF&W)
15. City of Dickson
16. Dickson County